

#### ABSTRACT OF THE DISCLOSURE

The method of this invention for analyzing impurities present in a silicon substrate comprises the steps of accommodating a silicon substrate resting on a support, and a solution for decomposing a silicon substrate which comprises a mixture of hydrofluoric acid, nitric acid and sulfuric acid, in an air-tight reaction vessel, in such a way as to keep the silicon substrate from directly contacting with the decomposition solution; allowing the decomposing solution to vaporize, thereby causing the substrate to decompose through vapor-phase reaction for sublimation, without heating or pressurizing the reaction vessel; and recovering the residue left by the decomposed substrate, to analyze the impurities contained in the substrate. This method makes it possible to determine highly precisely the content of impurities present in a silicon substrate in a comparatively short time by decomposing the substrate through vapor-phase reaction without resorting to heating or pressurization.